Radiation Safety Counseling News

How We Make Decisions for Radiation Safety - Part III

Dear Reader,

Ray Johnson

The topic for this month was originally introduced in our Newsletter in January 2012. That Newsletter drew upon observations from a recent book by David Ropeik, ***"How Risky is it, Really? Why Our Fears Don't Always Match the Facts."*** The McGraw Hill Companies, Inc. 2010 (Amazon - $13.60).

This month I continue to apply concepts from the book by Daniel Kahneman (Nobel prize in economics) ***"Thinking, Fast and Slow."*** Farrar, Straus, and Giroux, New York, 2011 to our industry concerns.

As always, your questions or feedback are welcomed. Feel free to contact us through email, our blog, or our Facebook page.

Regards,
Ray Johnson
ray@radiationcounseling.org
Radiation Safety Counseling Services

How We Make Decisions for Radiation Safety - Part III

We are constantly making decisions, judgments, or choices about events in our lives. We decide: to like (dislike), good (bad), right (wrong), OK (not OK), left (right), safe (unsafe), etc. We learned in previous Newsletters in this series that most of our decisions originate in the fast, automatic processes of our subconscious mind. Daniel Kahneman (Thinking, Fast and Slow) notes that the conscious mind requires time for slow deliberation of data to make decisions. Thus, all fast decisions come from the super fast subconscious mind. These processes were illustrated in a presentation which I made to over 100 attendees at a Continuing Education Lecture at the annual meeting of the Health Physics Society in Sacramento, CA on July 26, 2012. (How We Make Decisions for Radiation Safety). Attendees were asked, "Are Your Radiation Sources Safe?"

Answers to "Are Your Radiation Sources Safe?"

Most everyone immediately answered, "Yes!" even before we considered, "What does safe mean?" Since this question about radiation safety was answered instantly, this indicates that the answers were not based on logical rational analysis. Carefully analyzing information to draw conclusions takes time and this slow deliberate process does not lend itself to instant

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Got Questions?

If you have a question about radiation safety that you would like to share, please post your question on our Forum (blog) or our Facebook page. Each week our experts will select a question and post an answer that will also be included in our monthly newsletter.

To post a question go to:
Radiation Safety Forum
or
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decisions for safety. Quick decisions have to draw upon previous knowledge, experience, or beliefs stored in memory and processed subconsciously.

Attendees were then asked the following questions. How do you know that your radiation sources are safe? What information did you rely upon? What data or understanding did you bring to your decision? What observations? What experience? What have others told you? Do you have any knowledge of radiation risks beyond what others have reported? How did you evaluate this information? How long did you take to answer the question? Was your decision on radiation safety logical, analytical, and rational? Did you carefully analyze any data before arriving at your conclusion?

Given time to evaluate their instant conclusions on safety, the attendees began to consciously justify or rationalize their instant decision by describing contributing factors, as follows:

- the results of safety inspections,
- annual audits,
- radiation surveys,
- the results of your personnel monitoring program,
- your radiation safety program,
- meeting regulatory requirements,
- meeting license or registration requirements
- response of radiation meters,
- trust in co-workers,
- trust in manufacturer's design and safety testing,
- training for radiation safety, and
- technical understanding of radiation.

Most likely, none of these factors were in conscious awareness at the time of the instant decisions for safety. While as technical people we are inclined to believe that our decisions for safety are logical and rational, they may only be logical after we have had time to rationalize the decision already made by our subconscious mind.

More Questions

Did we actually have all the facts for a fully informed, rational, analytical decision for the safety of our radiation sources? Did we deliberately analyze any specific data before making our decision? How much did we rely on information provided by others? How do we judge trustworthy data? Who do we respect as a resource? How would we defend our decisions on safety?

When we make a decision for safety, ultimately we have to rely on information which we have read or heard reported by trustworthy sources. For example, most of our understanding of radiation health risks probably comes from reports by the National Academy of Sciences, National Research Council, Committee on Biological Effects of Ionizing Radiation (BEIR Reports). We may rely on what radiation instruments are telling, but we must have confidence that the instrument is working properly and that it was properly calibrated (by someone else).

Many of you were able to answer the question about radiation safety because you already have knowledge or experience to draw upon. If you have worked with radiation for a long time, then you may have made the decision about safety dozens or hundreds of times over the years, such that now your decision is automatic.

Communication Insights

Each week, we post another installment of guidance to improve communication with others. To stay informed, you can go to our blog and click on Follow: RSS, then choose to "Subscribe to this Feed".

You can also go to our Facebook page and choose "Like" to have our status updates displayed on your Facebook wall.

We hope you find this information helpful and welcome your comments, questions, or other feedback.

How Does the General Public Make Decisions for Radiation Safety?

How would workers or the public decide on the safety of radiation sources without special safety training, knowledge, or experience? What information would they rely upon? What source of information would they trust? What would they likely conclude about radiation safety? We know that much of the public would conclude that any source of radiation is unsafe. How would they arrive at that conclusion and how long would it take? These are questions that will be explored in next month's newsletter.

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